Brian E. J. Rose

Assistant Professor
Department of Atmospheric and Environmental Sciences
University at Albany (SUNY)
ES 351, 1400 Washington Ave., Albany NY 12222, U.S.A.

Phone: (518) 442-4477
Email: brose@albany.edu
Web: http://www.atmos.albany.edu/facstaff/brose/

Canadian citizen, lawful permanent resident of the USA, fluent in English and French

EDUCATION

2010   PHD, Climate Physics and Chemistry, Massachusetts Institute of Technology
        Oceanic control of the sea ice edge and multiple equilibria in the climate system (Advisor: J. Marshall. Awarded 2010 Rossby Prize.)

2002   MSc, Atmospheric and Oceanic Sciences, McGill University
        A diagnostic scheme for global precipitation based on vertical motion (Advisor: C.A. Lin)

1999   BSc, Atmospheric and Oceanic Sciences, McGill University
        Numerical simulation of a mesoscale vortex over the Beaufort Sea (Advisor: M.K. Yau)

APPOINTMENTS

2013 –   Assistant Professor (tenure-track), Atmospheric and Environmental Sciences, University at Albany (SUNY)

2012 – 2013 Research Associate, Atmospheric Sciences, University of Washington

2010 – 2012 NOAA Climate and Global Change Postdoctoral Fellow, Atmospheric Sciences, University of Washington. Host: David S. Battisti

2010   Postdoctoral Associate, Earth, Atmospheric and Planetary Sciences, MIT

2005 – 2010 Research Assistant, Earth, Atmospheric and Planetary Sciences, MIT

2003 – 2004 Research Assistant, Atmospheric and Oceanic Sciences, McGill University

2000   Research Assistant, McGill University and *Centre de recherche en calcul appliqué*, Montreal

PUBLICATIONS

* indicates student co-author

2018   Rencurrel, M.C.* and B.E.J. Rose (2018), Exploring the climatic response to wide variations in ocean heat transport on an aquaplanet. J. Climate, in press, doi:10.1175/JCLI-D-17-0856.1

2018   Rose, B.E.J. (2018), CLIMLAB: a Python toolkit for interactive, process-oriented climate modeling. J. Open Source Software, 3(24), 659, doi:10.21105/joss.00659

2017

Hoffman, P.F., D.S. Abbot, Y. Ashkenazy, D.I. Benn, J.J. Brocks, P.A. Cohen, G.M. Cox, J.R. Creveling, Y. Donnadieu, D.H. Erwin, I.J. Fairchild, D. Ferreira, J.C. Goodman, G.P. Halverson, M.F. Jansen, G. Le Hir, G.D. Love, F.A. Macdonald, A.C. Maloof, C.A. Partin, G. Ramstein, B.E.J. Rose, C.V. Rose, P.M. Sadler, E. Tziperman, A. Voigt, and S.G. Warren (2017), Snowball Earth climate dynamics and Cryogenian geology–geobiology. Science Advances 3:e1600983, doi:10.1126/sciadv.1600983

2017   Singh, H.A., P.J. Rasch and B.E.J. Rose (2017), Increased Ocean Heat Convergence into the High Latitudes with CO_2-Doubling Enhances Polar-Amplified Warming. Geophys. Res. Lett. 44, doi:10.1002/2017GL074561

2017   Rose, B.E.J., T.W. Cronin and C.M. Bitz (2017), Ice Caps and Ice Belts: the effects of obliquity on ice-albedo feedback. Astrophys. J. 846, doi:10.3847/1538-4357/aa8306

2017   Haugstad, A.D.*, K.C. Armour, D.S. Battisti and B.E.J. Rose (2017), Relative roles of surface temperature and climate forcing patterns in the inconstancy of radiative feedbacks. Geophys. Res. Lett. 44, doi:10.1002/2017GL074372

2016   Voigt, A., M. Biasutti, J. Scheff, J. Bader, S. Bordoni, F. Codron, R.D. Dixon, J. Jonas, S.M. Kang, N.P. Klingaman, R. Leung, J. Lu, B. Mapes, E.A. Maroon, S. McDermid, J. Park, R. Roehrig, B.E.J. Rose, G.L. Russell, J. Seo, T. Toniazzo, H. Wei, M. Yoshimori, and L.R.V. Zeppetello (2016), The Tropical Rain belts with an Annual Cycle and Continent Model Intercomparison Project: TRACMIP. J. Adv. Model. Earth Syst. 8, 1868–1891, doi:10.1002/2016MS000748

2016   Rose, B.E.J. and L. Rayborn* (2016), The effects of ocean heat uptake on transient climate sensitivity. Current Climate Change Reports 2, 190–201, doi:10.1007/s40641-016-0048-4.

2016   Rose, B.E.J. and M.C. Rencurrel* (2016), The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes. J. Climate 29, 4251–4268.

2015   Rose, B.E.J. (2015), Stable "Waterbelt" climates controlled by tropical ocean heat transport: a non-linear coupled climate mechanism of relevance to Snowball Earth. J. Geophys. Res. 150, doi:10.1002/2014JD022659

2014   Rose, B.E.J., K. Armour, D.S. Battisti, N. Feldl and D. Koll (2014), The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake. Geophys. Res. Lett. 41, doi:10.1002/2013GL058955.

2013   Rose, B.E.J., D. Ferreira and J. Marshall (2013), The role of oceans and sea ice in abrupt transitions between multiple climate states. J. Climate 26, 2862-2879.

2013   Rose, B.E.J. and D. Ferreira (2013), Ocean heat transport and water vapor greenhouse in a warm equable climate: a new look at the low gradient paradox. J. Climate 26, 2117-2136.

2011   Ferreira, D., J. Marshall and B.E.J. Rose (2011): Climate determinism revisited: multiple equilibria in a complex climate model. J. Climate. 24, 992-1012.

2010   Rose, B.E.J. (2010): Oceanic control of the sea ice edge and multiple equilibria in the climate system, PhD thesis, MIT, Cambridge MA.

2009   Rose, B.E.J. and J. Marshall (2009): Ocean heat transport, sea ice, and multiple climate states: insights from energy balance models. J. Atmos. Sci. 66, 2828-2843.

2003   Rose, B.E.J. and C.A. Lin (2003): Precipitation from vertical motion: a statistical diagnostic scheme. Int. J. Climatol. 23, 903-919.

Reprints available at http://www.atmos.albany.edu/facstaff/brose/

WORK IN PROGRESS

2018   A. Dai, D. Huang, B.E.J. Rose, J. Zhu and X. Tian, New Estimates of the Equilibrium Climate Sensitivity in Coupled Climate Models (submitted to Climate Dynamics)

2018   Cardinale, C.*, B.E.J. Rose and A.L. Lang, Stratospheric and Tropospheric Contributions to the Poleward Energy Flux Across 70°N and 65°S (to be submitted to J. Atmos. Sci.)

2018   Rencurrel, M.C.* and B.E.J. Rose, Understanding the Hadley circulation response to wide variations in ocean heat transport. (in prep.)

2018   Rose, B.E.J., Climate in the absence of ocean heat transport. (to be submitted to J. Adv. Model. Earth Syst.)

2018   Rose, B.E.J., L. Rayborn* and N. Feldl, Understanding the Dependence of Radiative Feedbacks and Clouds on the Spatial Structure of Ocean Heat Uptake. (in prep.)

OTHER SCHOLARLY ACTIVITY

DEVELOPER OF OPEN-SOURCE SCIENTIFIC COMPUTER SOFTWARE

All source code publicly available at https://github.com/brian-rose/

2014 –   CLIMLAB, a Python-based toolkit for interactive, process-oriented climate modeling

2015 –   pyCESM, a Python-based analysis package for output from the Community Earth System Model

GRANT FUNDING

2015 – 2020   CAREER: Understanding the role of oceans in the planetary energy budget (PI). NSF, $544,681. *Status: ongoing*

2018   Does the Earth System have multiple stable states? (PI). UAlbany FRAP-B award, $4,000. *Status: awarded*

2018-2023   Collaborative Research: Framework: Software: Community Earth System Informatics: Enabling Convergent Science (co-PI). NSF Cyberinfrastructure for Sustained Scientific Innovation, $4,808,504. UAlbany component $500,000. *Status: submitted*

PRESENTATIONS

INVITED PRESENTATIONS

2018/01   AMS 17th Annual Student Conference, Tools of the Trade session: The Jupyter notebook.

2017/09   Columbia University, SEAS Colloquium in Climate Science: Why does climate sensitivity go up as ocean heat uptake declines? A linear systems perspective.

2017/05   York University, Earth & Space Sci. & Eng.: Global climate sensitivity goes up as ocean heat uptake declines: a linear systems perspective on inconstant climate feedbacks.

2017/03   MIT, PAOC seminar: Why does climate sensitivity go up as ocean heat uptake declines? A linear systems perspective.

2016/04

UW, Atmos. Sci.: The vertical structure of tropospheric water vapor: comparing radiative and ocean-driven climate changes.

2016/04   UW, Atmos. Sci.: Climate in the absence of ocean heat transport.

2015/11   Columbia University, SEAS Colloquium in Climate Science: Understanding the effects of ocean circulation on radiative feedbacks and the planetary energy budget.

2015/09   Stony Brook University, Marine & Atmos. Sci.: Understanding the effects of ocean circulation on radiative feedbacks and the planetary energy budget.

2015/01   Massachusetts College of Liberal Arts: What sets the temperature of the Earth? (public lecture)

2013/10   Caltech ESE seminar: The role of oceans in climate sensitivity and radiative feedbacks

2013/10   Courant Institute, NYU: The role of oceans in climate sensitivity and radiative feedbacks.

2013/05   SIAM Dynamical Systems conference: Multiple sea ice states and hysteresis in climate models.

2013/03   McGill University, Atmos. & Oceanic Sci.: One wet planet, many climates.

2013/03   UW, Atmos. Sci.: Climate sensitivity and the oceans.

2013/01   U. Albany, Atmos. & Environ. Sci.: One wet planet, many climates.

2012/11   UW, Atmos. Sci.: Understanding why ocean heat transport matters: a multi-model approach.

2012/05   MIT EAPS: Why does the climate system care about ocean heat transport?

2012/04   UW, Oceanography: Modeling* the role of oceans and sea ice in multiple equilibria, abrupt climate change, and Snowball Earth (* and maybe understanding).

2012/04   U. Chicago, Geophysical Sci.: Water, water everywhere: role of oceans in warm climates.

2012/03   LDEO, Columbia U.: Why does the climate system care about ocean heat transport?

2011/10   U. Chicago, Geophysical Sci.: Why does the climate system care about ocean heat transport?

2011/10   UW, Oceanography: Why does the climate system care about ocean heat transport?

2011/09   ACDC2011, Friday Harbor WA: Ocean heat transport and weak temperature gradients.

2011/02   CalTech, Environ. Sci. & Eng.: Impact of ocean heat transport in cold and warm climates.

2011/01   UW, Atmos. Sci.: Oceanic control of the sea ice edge and multiple equilibria.

2010/09   Harvard U., Earth and Planetary Sci.: Multiple equilibria of sea ice and climate.

CONTRIBUTED CONFERENCE PRESENTATIONS

* indicates student co-author

2018/01   Rose, B.E.J. and C. Cardinale*, Stratospheric and Tropospheric Contributions to the Flux of Moist Static Energy across 70°N (oral presentation), AMS 31st Conference on Climate Variability and Change.

2018/01   Rose, B.E.J., A Computational Approach to Climate Science Education with CLIMLAB, AMS Eighth Symposium on Advances in Modeling and Analysis Using Python.

2017/12   Rose, B.E.J., Climate in the absence of ocean heat transport (oral presentation), AGU Fall Meeting

2017/12

Rose, B.E.J., A computational approach to climate science education with CLIMLAB (poster), AGU Fall Meeting

2017/12   Rencurrel, M.C.* and B.E.J. Rose, Understanding the robustness of Hadley cell response to wide variations in ocean heat transport (oral presentation), AGU Fall Meeting

2017/12   Cardinale, C.* and B.E.J. Rose, Stratospheric and Tropospheric Contributions to the Flux of Moist Static Energy Across 70°N and 65°S (poster), AGU Fall Meeting

2017/06   Rose, B.E.J., T.W. Cronin and C.M. Bitz, Ice Caps and Ice Belts: the effects of obliquity on albedo feedback (oral presentation), AMS Conference on Atmospheric and Oceanic Fluid Dynamics.

2017/06   Singh, H.A., P.J. Rasch and B.E.J. Rose, Impact of Ocean Dynamics on Polar Climate Change (oral presentation), AMS Conference on Atmospheric and Oceanic Fluid Dynamics.

2017/01   Rose, B.E.J., CLIMLAB: a Python-Based Software Toolkit for Interactive, Process-Oriented Climate Modeling, AMS Seventh Symposium on Advances in Modeling and Analysis Using Python.

2016/12   Rose, B.E.J. and L. Rayborn*, Climate sensitivity increases as ocean heat uptake declines: a linear systems perspective (oral presentation), AGU Fall Meeting.

2016/12   Rose, B.E.J., Interactive, process-oriented climate modeling with CLIMLAB (oral presentation), AGU Fall Meeting.

2016/12   Rayborn, L.* and B.E.J. Rose, Understanding the Dependence of Radiative Feedbacks and Clouds on the Spatial Structure of Ocean Heat Uptake (oral presentation), AGU Fall Meeting.

2016/12   Rencurrel, M.C.* and B.E.J. Rose, Understanding Atmospheric Adjustment to Variations in Tropical Ocean Heat Transport (poster), AGU Fall Meeting.

2016/11   Rose, B.E.J., CLIMLAB: a Python toolkit for interactive, process-oriented climate modeling (oral presentation), AOSPY workshop, Columbia University.

2016/11   Rose, B.E.J., Robust non-local effects of ocean heat uptake on radiative feedback and subtropical cloud cover (oral presentation), Model Hierarchies workshop, Princeton.

2016/02   Rose, B.E.J., Robust non-local effects of ocean heat uptake on radiative feedback and subtropical cloud cover (oral presentation), Ocean Sciences.

2015/12   Rayborn, L.* and B.E.J. Rose, Robust effects of ocean heat uptake on radiative feedback and subtropical cloud cover: a study using radiative kernels (oral presentation), AGU Fall Meeting.

2015/12   Rencurrel, M.C.* and B.E.J. Rose, Atmospheric compensation of variations in tropical ocean heat transport: understanding mechanisms and implications on tectonic timescales (poster), AGU Fall Meeting.

2015/12   Rose, B.E.J., Climate in the absence of ocean heat transport (poster), AGU Fall Meeting.

2015/12   Rose, B.E.J., CLIMLAB: a Python-based software toolkit for interactive, process-oriented climate modeling (poster), AGU Fall Meeting.

2014/12   Rose, B.E.J., Accidental Lessons on Nonlinear Wind - Ocean - Sea Ice Interaction in the Tropics, with Implications for Snowball Earth (poster), AGU Fall Meeting.

2014/06   Rose, B.E.J., The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake (oral presentation), Latsis Symposium, ETH Zurich.

2013/12

Rose, B.E.J., D. Battisti and K. Armour, The dependence of transient climate sensitivity and radiative feedbacks on the spatial pattern of ocean heat uptake (oral presentation), AGU Fall Meeting.

2012/12   Rose, B.E.J., Understanding the atmospheric response to ocean heat transport: a model inter-comparison (oral presentation), AGU Fall Meeting.

2011/12   Rose, B.E.J., D. Ferreira and J. Marshall, Not all poleward heat transport is created equal: a new look at warm climates, water vapor feedback, and the low-temperature-gradient paradox (oral presentation), AGU Fall Meeting.

2011/06   Rose, B.E.J., D. Ferreira and J. Marshall, On the dynamics of an abrupt climate change (oral presentation), CMOS Congress, Victoria BC.

2011/05   Rose, B.E.J., D. Ferreira and J. Marshall, On the dynamics of an abrupt climate change (oral presentation), AMS Polar Meteorology and Oceanography Conference, Boston MA.

2010/07   Rose, B.E.J., Oceanic control of the sea ice edge and multiple equilibria in the climate system (thesis defense), MIT, Cambridge MA.

2010/06   Rose, B.E.J., D. Ferreira and J. Marshall, Multiple equilibria and abrupt climate change in coupled Aquaplanet simulations (oral presentation), CMOS Congress, Ottawa ON.

2010/05   Rose, B.E.J., Ocean heat transport, sea ice, and multiple equilibria of the climate system, Sack Lunch Seminar in Oceanography and Climate, MIT, Cambridge MA.

2009/11   Rose, B.E.J., D. Ferreira and J. Marshall, Multiple equilibria of the atmosphere-ocean-ice system (oral presentation), Ocean-Atmosphere Energy Transport conference, Pasadena CA.

2009/04   Rose, B.E.J., Multiple equilibria of the atmosphere-ocean-ice system (oral presentation), Graduate Climate Conference, UW, Pack Forest WA.

2008/04   Rose, B.E.J. and J. Marshall, Heat transport, wind stress and the ice edge: new insights from simple models (oral presentation), CMOS Congress, Kelowna BC.

2007/10   Rose, B.E.J., Sea ice, wind, and ocean currents: feedbacks and instabilities in ice age climates (oral presentation), Graduate Climate Conference, UW, Pack Forest WA.

2007/05   Rose, B.E.J. and J. Marshall, Constraints on atmospheric and oceanic heat transport from an idealized coupled climate model with sea-ice (oral presentation), CMOS-CGU-AMS Joint Congress, St. John's NF.

2006/04   Rose, B.E.J., The partition of heat transport in a simple coupled climate model (oral presentation), Graduate Climate Conference, UW, Pack Forest WA

2004/06   Rose, B.E.J. and C.A. Lin, A reconstruction of historical summer drought in Quebec based on tree rings (poster), Symposium Ouranos sur les changements climatiques, Montreal QC

2001/02   Rose, B.E.J. and C.A. Lin, Statistical relation between precipitation and vertical motion (oral presentation), Canadian CLIVAR Network Workshop, Victoria BC.

TEACHING AND ADVISING

COURSES AT U. ALBANY

2017, 2015   A ATM 623 Climate Modeling

2017, 2016, 2015 A ATM 500 Atmospheric Dynamics

2018, 2016, 2014 A ATM/ENV 415 Climate Laboratory (previously A ENV 480)
2014   A ATM 316 Dynamic Meteorology I
2013   A ATM 619 Oceans and Climate Seminar

PREVIOUS TEACHING

2013   UW ATMS 542 Geophysical Fluid Dynamics II, co-taught with David Battisti
2011, 2013   UW ATMS 514 / ESS 535 Ice and Climate, guest lectures for C.M. Bitz
2011   Lecturer, Advanced Climate Dynamic Course ACDC2011, "Dynamics of Past Warm Climates"
2009   Lecture note preparation, P. O'Gorman, General Circulation of the Atmosphere, MIT
2007   TA, guest lecturer, J. Marshall, Physics of Atmospheres and Oceans, MIT
2006 – 2007   Lab assistant, Fayerweather Street School, Cambridge MA
2006   TA for R.S. Lindzen, Strange bedfellows: science and environmental policy, MIT

GRADUATE STUDENTS ADVISED

Current

2016 –   Christopher Cardinale (advisor, MS anticipated summer 2018)
2014 –   Michael Cameron Rencurrel (advisor, MS completed 2/2017, PhD qualifying exam 5/2017)
2015 –   Anthony Coletti (committee member, U. Massachusetts Amherst, PhD defense anticipated fall 2018)
2016 –   Lanxi Min (committee member, PhD qualifying exam 5/2016)
2016 –   Di Chen (committee member, PhD prospectus 12/2017)
2018 –   Hing Ong (committee member, PhD qualifying exam anticipated fall 2018)
2018 –   Ajay Raghavendra (committee member, PhD qualifying exam anticipated summer 2018)

Completed

2015 – 2016   Lance Rayborn (advisor, MS completed 12/2016)
2014 – 2018   Hannah Attard (committee member, PhD defended 4/2018)
2013 – 2016   Christopher Colose (committee member, PhD defended 12/2016)
2014 – 2017   Theodore Letcher (committee member, PhD defended 2/2017)
2013 – 2017   Pablo Paiewonsky (committee member, PhD defended 6/2017)
2017   Christine Bloecker (MS thesis reader, 5/2017)
2015   Melissa Gervais (external PhD thesis examiner, McGill University)

UNDERGRADUATE STUDENTS ADVISED

2014   Deborah McGlynn (senior thesis in Environmental Science)
2013 –   Academic advisor for roughly 12 students in Atmospheric Science and Environmental Science majors

SERVICE

DEPARTMENTAL

2017	Represented DAES at DEC Pack Forest camp College Exploration event
2015 –	DAES graduate committee member
2014 –	Chair, planning committee for GFD / Env. Sci. teaching laboratory in E-TEC building
2014 –	Organizer, DAES Climate Group weekly seminar series
2017, 2015	Transfer student advising

COLLEGE OF ARTS AND SCIENCES

2016 –	CAS Faculty Council (at-large councillor)
2016 – 2017	CAS Academic Planning Committee (inactive)
2017 – 2018	CAS Academic Support Committee

UNIVERSITY

2017	Strategic Planning Steering Committee (member of discussion group for Engaging Locally and Globally)
2018 –	Udall Scholarship review committee

PROFESSIONAL

2017 – 2018	Member of Advisory Committee for NSF-funded workshop: "Enabling US Early Career Researchers to Advance Polar Science using High Performance Computing and Earth System Modeling". To be held at NCAR (Boulder, CO) in August 2018.
2009 –	Reviewer for Nature, J. Climate, J. Atmos. Sci., J. Geophys. Res., Geophys. Res. Lett., Nature Geosci., Nature Clim. Change, Nature Comm., JAMES, Astrophys. J., Mon. Not. R. Astron. Soc., SIAM J. Appl. Dyn. Sys., Earth Sys. Dyn., & Encyclopedia of Natural Resources
2015 –	Proposal reviewer for National Science Foundation, United States-Israel Binational Science Foundation, and Israel Science Foundation
2015	Session Convener: "Polar Climate and Predictability", AGU Fall Meeting.
2014	Session Convener: "Innovative Insights into the Climate System and Climate Models: Exploring Scales and Parameter Spaces", AGU Fall Meeting.
2013	Judge for Outstanding Student Presentation Awards, AGU Fall Meeting.
2012	Commendation for exceptional refereeing, Nature Publishing Group.
2012/07	Convener and moderator, Workshop on heat transport in aquaplanet models, UW Atmos. Sci..
2011/04	Moderator, climate dynamics session, 20th anniversary celebration of the NOAA C&GC Postdoctoral Fellowship Program, Silver Spring MD, 04/2011.
2009/04	Chair (invited), ocean circulation session, 3rd Graduate Climate Conference, UW.

COMMUNITY

2018 –	UAlbany Family Earth Day, organizer
2016 – 2018	UAlbany Family Earth Day, "weather in a tank" demonstrations
2014/18	Space Science and Next Generation of Science Standards (forum for high school science teachers), lecture on climate change and climate modeling, RPI.
2007 – 2009	Session leader, YouthCAN Summit on Global Warming, MIT.
2008/01	Public seminar: "Looking Back on the Future of Climate Change", MIT.

HONORS AND AWARDS

2010 – 2012	NOAA Climate and Global Change Postdoctoral Fellowship
2010	Carl-Gustav Rossby Prize for best thesis, MIT
2004	Jule G. Charney Prize and MIT Presidential Fellowship
2002	Dean's Honour List for M.Sc. thesis, McGill University
2001 – 2002	NSERC Graduate Fellowship, McGill University
2001	Meteorological Service of Canada supplement to NSERC Fellowship (declined)
1999	NSERC Undergraduate Research Fellowship
1995 – 1999	James McGill Scholarship and J.S. Marshall Prize, McGill University

SUMMER SCHOOLS AND WORKSHOPS

2018/07	WCRP Grand Challenge on Clouds, Circulation and Climate Sensitivity: 2nd Meeting on Monsoons and Tropical Rain Belts, Trieste, Italy.
2018/06	ICTP Summer School on Theory, Mechanisms and Hierarchical Modelling of Climate Dynamics: Multiple Equilibria in the Climate System, Trieste, Italy.
2018/06	Rossbypalooza, "Understanding climate through simple models", U. Chicago.
2016/11	AOSPY / Pangeo scientific software workshop, Columbia University.
2016/11	Model Hierarchies Workshop, Princeton University.
2015/09	Monsoons and the ITCZ: the annual cycle in the Holocene and the future, Columbia University.
2012/09	PCC Summer Institute: Atmosphere-Ocean-Ice Shelf Interactions, Friday Harbor, WA.
2012/07	Workshop on heat transport in aquaplanet models, University of Washington.
2012/07	NOAA Climate and Global Change Summer Institute, Steamboat Springs, CO.
2011/09	ACDC2011: Dynamics of Past Warm Climates, Friday Harbor, WA.
2009/05	Fundamental Problems in Climate Dynamics, Princeton University.
2007/07	International Sea Ice Summer School, Svalbard.

PROFESSIONAL AFFILIATIONS

American Geophysical Union
American Meteorological Society